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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/732,468	12/07/2000	Christopher Mark Bowles	TI-24521	3187

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EXAMINER

PEREZ RAMOS, VANESSA

ART UNIT

PAPER NUMBER

1765

DATE MAILED: 07/23/2002

7

Please find below and/or attached an Office communication concerning this application or proceeding.

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**Office Action Summary**

Application No.

09/732,468

Applicant(s)

BOWLES ET AL.

Examiner

Vanessa Perez-Ramos

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1765

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 28 March 2002.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-21 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

**DETAILED ACTION**

***Claim Rejections - 35 USC § 102***

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) do not apply to the examination of this application as the application being examined was not (1) filed on or after November 29, 2000, or (2) voluntarily published under 35 U.S.C. 122(b). Therefore, this application is examined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

2. Claims 1-2 , 6- 9 , 13 and 17-18 are rejected under 35 U.S.C. 102(e) as being anticipated by Lin et al. (U.S. 6,057,207).

Lin discloses a method for forming a shallow trench isolation (col. 2, line 25) comprising: forming a plurality of isolation trenches in substrate, the trenches separating active areas (col. 2, lines 44-51); forming an insulating layer over the substrate, the insulating layer being silicon oxide (col. 2, line 53) ; filling the trenches and covering the active areas (col. 2, lines 52-55); forming a conformal barrier layer, which reads on Applicant's "planarization layer" on the insulating layer (col. 2, lines 57-61); removing the planarization layer and insulating layer (col. 2, lines 62-67 and col. 3, lines 1-8) down to a stop layer for the active areas ( col. 7, lines 44-45). Furthermore, Lin discloses that the step of removing the planarization and insulation layers further comprise etching at a certain rate through the planarization layer and the insulation layer

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down to a certain depth, which reads on Applicant's "down to a CMP depth outward from the active areas" (col. 2, lines 62-67, col. 3, lines 1-2 and col. 6, lines 52-54) and then chemical mechanical polishing from there to the stop layer (col. 3, lines 3-8), said etch stop layer comprising silicon nitride (col. 7, lines 47-48) and being later removed (col. 7, lines 46-47).

***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 3-5, 10-12, 14-16 and 19-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lin et al. (U.S. 6,057,207), as applied to claims 1-2, 6-9, 13 and 17-18 above.

In regard to claims 3-5, 14-16 and 21, Lin does not disclose that etching through the insulating and planarizing layers is done by an etch process that etches both layers at differing rates.

However, it is the Examiner's position that, since etching rate is a result-effective variable, its variation would have been obvious to one of ordinary skill in the art at the time of the invention, with the purpose of establishing the optimum process conditions.

In regard to claims 10 and 19, it is the Examiner's position that the use of a resist material would have been obvious to one of ordinary skill in the art at the time of the invention, since this is a widely-used material in the art.

In regard to claims 11 and 20, Lin does not disclose a preferred etching depth.

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However, it is the Examiner's position that, since depth is a result-effective variable, its variation would have been obvious to one of ordinary skill in the art at the time of the invention, with the purpose of establishing the optimum process conditions.

In regard to claim 12, the use of conformal layers would have been obvious to one of ordinary skill in the art at the time of the invention, since this is a widely-used material in the art.

### ***Response to Arguments***

5. Applicant's arguments filed 3/28/02 have been fully considered but they are not persuasive.

Applicant argues that Lin teaches away from forming a planarization layer outwardly from the insulation layer. However, the Examiner stands by her earlier position that the barrier layer of Lin reads on what Applicant calls "planarization layer", as both are located in similar positions and perform similar functions.

It is noted that Applicant's arguments with respect to claims 2-21 are based on the same argument discussed above.

6. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period

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will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

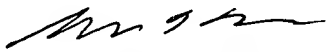
7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Vanessa Perez-Ramos whose telephone number is 703-306-5510. The examiner can normally be reached on Mon-Thurs 7:00am-5:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Benjamin Utech can be reached on 703-308-3836. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9310 for regular communications and 703-872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-306-5665.

Vanessa Perez-Ramos  
Examiner  
Art Unit 1765

VPR  
July 18, 2002

  
**BENJAMIN L. UTECH**  
**SUPERVISORY PATENT EXAMINER**  
**TECHNOLOGY CENTER 1700**